WHAT IS CLAIMED IS:

1. A driving assist system for assisting effort by an operator to operate a vehicle in traveling, the driving assist system comprising:

a data acquisition system acquiring data including information on vehicle state and information on environment in a field around the vehicle;

a controller, mounted to the vehicle, for receiving the acquired data, for determining future environment in the field using the acquired data, for making an operator response plan in response to the determined future environment, which plan prompts the operator to operating the vehicle in a desired manner for the determined future environment, to determine command, and for generating the command; and

at least one actuator, mounted to the vehicle, for prompting the operator in response to the command to operating the vehicle in the desired manner.

2. The driving assist system as claimed in claim 1, wherein the information on environment involves information on the presence of obstacles in the field; wherein the determined future environment involves a risk which each of the obstacles would cause the operator to perceive; and wherein the operator response plan is made to prompt the operator to operating the vehicle in the desired manner to reduce the risks.

3. The driving assist system as claimed in claim 2, wherein the information on environment involves information on road condition; wherein the determined future environment involves a risk derived from the road condition, which is determined by a lateral deviation of the vehicle from a lane and by curvature of

the lane; and wherein the operator response plan is made to prompt the operator to operating the vehicle in the desired manner to reduce the risks superimposed by the risk derived from the road condition.

4. The driving assist system as claimed in claim 1, wherein the operator response plan includes the amount of input to the actuator, and wherein the actuator is capable of modulating reaction characteristic to manual effort by the operator.

5. The driving assist system as claimed in claim 1, wherein the information on environment involves information on the presence of a leading vehicle ahead in the same lane on a road in the field.

6. The driving assist system as claimed in claim 5, wherein the controller uses information of velocity of the vehicle, velocity of the leading vehicle and relative vehicle velocity in determining future environment in the field.

7. The driving assist system as claimed in claim 5, wherein the determined future environment includes a relative positional relation between the vehicles.

8. The driving assist system as claimed in claim 6, wherein the determined future environment includes a relative position between the vehicles.

9. The driving assist system as claimed in claim 1, wherein the actuator is capable of modulating reaction characteristic to manual steering effort by the operator.

10. The driving assist system as claimed in claim 1, wherein

the actuator is capable of modulating reaction characteristic to manual effort applied onto an accelerator of the vehicle by the operator.

11. The driving assist system as claimed in claim 1, wherein the actuator is capable of modulating reaction characteristic to manual effort applied onto a brake of the vehicle by the operator.

12. A driving assist system for assisting effort by an operator to operate a vehicle in traveling, the driving assist system comprising:

a data acquisition system acquiring data including information on vehicle state and information on environment in a field around the vehicle, the information on environment involving information on the presence of obstacles in the field;

a controller, mounted to the vehicle, for receiving the acquired data, for determining future environment in the field, the determined future environment involving a risk which each of the obstacles would cause the operator to perceive, for making an operator response plan in response to the determined future environment, which plan prompts the operator to operating the vehicle at least longitudinally to reduce the risks, to determine commands, and for generating the commands; and

a plurality of actuators, mounted to the vehicle, for prompting the operator in response to the commands to operating the vehicle at least longitudinally, the plurality of actuators includes an accelerator reaction modulation actuator capable of modulating reaction characteristic to manual effort applied onto an accelerator of the vehicle.

13. A driving assist system for assisting effort by an operator

to operate a vehicle in traveling, the driving assist system comprising:

a data acquisition system acquiring data involving information on the presence of a leading vehicle in a field around the vehicle; and

a controller, mounted to the vehicle, for receiving the acquired data, for determining a first extent to which the vehicles has approached to each other and a second extent to which the first extent might be influenced if a change in environment should occur, and for determining future environment in the field based on the first and second extents.

14. The driving assist system as claimed in claim 13, wherein, in determining the first and second extents, the controller uses a velocity of the vehicle, a velocity of the leading vehicle, and the vehicle separation.

15. The driving assist system as claimed in claim 14, wherein the first extent is a first risk category, and the second extent is a second risk category.

16. The driving assist system as claimed in claim 13, wherein the controller makes an operator response plan in response to the determined future environment to determine a command and generates the command; and further comprising an accelerator reaction modulation actuator capable of modulating reaction characteristic to manual effort applied onto an accelerator of the vehicle by the operator in response to the command.

17. The driving assist system as claimed in claim 13, wherein the controller has various alert categories with different environment categories and selects one of the alert categories

for the determined future environment to determine a command, and generates the command; and further comprising an alarm capable of producing an alarm signal indicative of the selected one alert category in response to the command.

18. The driving assist system as claimed in claim 15, wherein the first risk category is a function of relative vehicle velocity and vehicle separation.

19. The driving assist system as claimed in claim 15, wherein the second risk category is a function of vehicle separation and one of velocities of the vehicles.

20. The driving assist system as claimed in claim 15, wherein, in determining future environment, the controller weighs the first and second risk categories differently with first and second parameters.

21. The driving assist system as claimed in claim 20, wherein the second risk category is weighted less than the first risk category is.

22. The driving assist system as claimed in claim 21, wherein the determined future environment is the sum of the weighted first and second risk categories.

23. The driving assist system as claimed in claim 21, wherein the determined future environment is the greater one of the weighted first and second risk categories.

24. A driving assist for assisting effort by an operator to operate a vehicle in traveling, the driving assist system comprising:

a data acquisition system acquiring data involving information on the presence of a leading vehicle in a field around the vehicle; and

a controller, mounted to the vehicle, for receiving the acquired data, for determining an extent to which the vehicles has approached to each other, for determining a period of time as a function of the determined extent and for determining a future quantity of the extent that would occur upon elapse of the period of time from the determined extent to give future environment in the field.

25. The driving assist system as claimed in claim 24, wherein the controller makes an operator response plan in response to the determined future environment to determine a command and generates the command; and further comprising an accelerator reaction modulation actuator capable of modulating reaction characteristic to manual effort applied onto an accelerator of the vehicle by the operator in response to the command.

26. The driving assist system as claimed in claim 24, wherein the controller has various alert categories with different environment categories and selects one of the alert categories for the determined future environment to determine a command, and generates the command; and further comprising an alarm capable of producing an alarm signal indicative of the selected one alert category in response to the command.

27. The driving assist system as claimed in claim 24, wherein the period of time is inversely proportional to the determined extent.

28. The driving assist system as claimed in claim 15, wherein,

in determining future environment, the controller calculates a risk perceived (RP) as a function of the first and second risk categories, and smoothes a difference between a change of the RP with respect to a unit change in a time headway (THW) between the vehicles when the time headway is less than a threshold THW value and a change of the RP with respect to the unit change in the time headway when the time headway is greater than the threshold THW.

29. The driving assist system as claimed in claim 15,

wherein, when a time headway (THW) between the vehicles is not greater than a threshold THW value, in determining future environment, the controller calculates a risk perceived (RP_0) as function of a first term, which is proportional to the first risk category that is given by the reciprocal of a time to contact (TTC) between the vehicles, and a second term, which is proportional to the second risk category that is given by the reciprocal of the THW;

and wherein, when the THW is greater than the threshold THW value, in determining future environment, the controller calculates a risk perceived (RP_1) as a function of the first term and a third term, which proportional to the second risk category that is given by a quantity subtracted by the THW.

30. The driving assist system as claimed in claim 15,

wherein, in determining future traffic state, the controller calculates a risk perceived (RP_2) as a function of a first term, which is proportional to the first risk category that is given by the reciprocal of a time to contact (TTC) between the vehicles, a second term, which corresponds to the second risk category that is given by the reciprocal of a time headway (THW) between the vehicles, and a third term, which is proportional to the second risk category that is given by a quantity subtracted by the THW;

and wherein, the function involves a first parameter multiplied with the second term and a second parameter multiplied with the third term;

and wherein, the controller sets the first and second parameters in response to the THW.

31. The driving assist system as claimed in claim 30, wherein the controller sets the first and second parameters such that the third term grows apparent in the function than the second term does as the THW increases.

32. The driving assist system as claimed in claim 15, wherein, in determining future environment, the controller calculates a risk perceived (RP_2) as a function of a first term, which is proportional to the first risk category that is given by the reciprocal of a time to contact (TTC) between the vehicles, a second term, which corresponds to the second risk category that is given by the reciprocal of a time headway between the vehicles, and a third term, which is proportional to the second risk category that is given by a quantity subtracted by the THW;

and wherein, in response to the THW, the controller alters weighting components, which are imposed on the second term and the third term, respectively.

33. The driving assist system as claimed in claim 32, wherein, when the THW is not greater than a threshold THW value, the controller sets 1 as the weighting component imposed on the second term and sets 0 as the weighting component imposed on the third term; and, wherein, when the THW is greater than the threshold THW value, the controller sets 0 as the weight imposed on the second term and sets 1 as the weighting components imposed on the third term.

34. The driving assist system as claimed in claim 32, wherein, when the THW is not greater than a threshold THW value, the controller sets 1 as the weighting component imposed on the second term and sets 0 as the weighting component imposed on the third term; and wherein, as the THW exceeds the threshold THW value, the controller alters the weighting components imposed on the second term and the third term such that as the THW increases, the weighting component imposed on the second term (1/THW) reduces toward 0 from 1, while the weighting component imposed on the third term increases from 0 toward 1.

35. The driving assist system as claimed in claim 28, wherein the first risk category is a function of relative vehicle velocity and vehicle separation.

36. The driving assist system as claimed in claim 28, wherein the controller makes an operator response plan in response to the determined future environment to determine a command and generates the command; and further comprising an accelerator reaction modulation actuator capable of modulating reaction characteristic to manual effort applied onto an accelerator of the vehicle by the operator in response to the command.

37. The driving assist system as claimed in claim 28, wherein the controller has various alert categories with different environment categories and selects one of the alert categories for the determined future environment to determine a command, and generates the command; and further comprising an alarm capable of producing an alarm signal indicative of the selected one alert category in response to the command.

38. A driving assist system for assisting effort by an operator to operate a vehicle in traveling, the driving assist system comprising:

a data acquisition system acquiring data involving information on the presence of an obstacle in a field around the vehicle;

a controller, mounted to the vehicle, for receiving the acquired data, for determining a risk which the obstacle would cause the operator to perceive, for allocating commands for prompting the operator to operating the vehicle longitudinally and laterally, and for generating the commands; and

a plurality of actuators, mounted to the vehicle, to prompt the operator in response to the commands to operating the vehicle longitudinally and laterally.

39. The driving assist system as claimed in claim 38, wherein the commands are applied to the plurality of actuators.

40. The driving assist system as claimed in claim 39, wherein each of the plurality of actuators is capable of modulating reaction characteristic to manual effort by the operator.

41. The driving assist system as claimed in claim 38, wherein the data acquisition system is mounted to the vehicle.

42. The driving assist system as claimed in claim 38, wherein the controller uses a direction from the vehicle to the obstacle, a separation between the vehicle and the obstacle, and a relative velocity between the vehicle and the obstacle in determining a risk, which the obstacle would cause the operator to perceive.

43. The driving assist system as claimed in claim 42, wherein the risk is a function of a time to contact (TTC) that is given by

dividing the separation by the relative velocity.

44. The driving assist system as claimed in claim 43, wherein the data acquisition system is mounted to the vehicle, and wherein the controller accounts for variance of the separation and variance of the relative velocity in determining the TTC.

45. The driving assist system as claimed in claim 44, wherein the obstacle is classified into one of predetermined categories; and wherein the variances of separation and relative velocity with regard to the obstacle are subject to variation, in magnitude, with different categories, which the obstacle may be classified into, of the predetermined categories.

46. The driving assist system as claimed in claim 44, wherein the data acquisition system includes a plurality sensors of different kinds, in performance, for sensing the obstacle; and wherein the variances of separation and relative velocity with regard to the obstacle are subject to variation, in magnitude, with different kinds, in performance, of sensors, whereby the obstacle may be sensed.

47. The driving assist system as claimed in claim 43, wherein the obstacle is classified into one of predetermined categories that are weighted differently, and wherein the controller accounts for how much the category, which the obstacle is classified into, is weighted in determining the TTC that is used in determining the risk.

48. The driving assist system as claimed in claim 44, wherein the obstacle is classified into one of predetermined categories that are weighted differently, and wherein the controller accounts for how much the category, which the obstacle is classified into, is weighted in determining the TTC that is used in determining the risk.

49. The driving assist system as claimed in claim 46, wherein the obstacle is classified into one of predetermined categories that are weighted differently, and wherein the controller accounts for how much the category, which the obstacle is classified into, is weighted in determining the TTC that is used in determining the risk.

50. The driving assist system as claimed in claim 45, wherein the obstacle is classified into one of predetermined categories that are weighted differently, and wherein the controller accounts for how much the category, which the obstacle is classified into, is weighted in determining the TTC that is used in determining the risk.

51. The driving assist system as claimed in claim 42, wherein, in making an operator response plan, the controller divides the determined risk into a longitudinal, with respect to the vehicle, risk component and a lateral, with respect to the vehicle, risk component, uses the longitudinal risk component to determine

the amount of input to one of the plurality of actuators, and uses the lateral risk component to determine the amount of input to another of the plurality of actuators.

52. The driving assist system as claimed in claim 42, wherein, in making an operator response plan, the controller estimates a change in the risk for a change of manual effort by the operator in operating the vehicle longitudinally and a change of manual effort by the operator in operating the vehicle laterally.

53. A driving assist system for assisting effort by an operator to operate a vehicle in traveling, the driving assist system comprising:

a data acquisition system acquiring data involving information on the presence of obstacles in a field around the vehicle;

a controller, mounted to the vehicle, for receiving the acquired data, for determining a risk which each of the obstacles would cause the operator to perceive, for making an operator response plan in response to the risks, which plan prompts the operator to operating the vehicle longitudinally and laterally, to determine commands, and for generating the commands; and

a plurality of actuators, mounted to the vehicle, to prompt the operator in response to the commands to operating the vehicle longitudinally and laterally.

54. The driving assist system as claimed in claim 38, wherein one of the plurality of actuators is capable of modulating reaction characteristic to manual effort applied onto an accelerator of the vehicle by the operator.

55. The driving assist system as claimed in claim 38, wherein one of the plurality of actuators is capable of modulating reaction

characteristic to manual effort applied onto a brake of the vehicle by the operator.

56. The driving assist system as claimed in claim 38, wherein one of the plurality of actuators is capable of modulating reaction characteristic to manual steering effort by the operator.

57. A driving assist system for assisting effort by an operator to operate a vehicle in traveling, the driving assist system comprising:

a data acquisition system, mounted to the vehicle, acquiring data involving information on the presence of an obstacle in a field around the vehicle;

a controller, mounted to the vehicle, for receiving the acquired data, for determining a risk which the obstacle would cause the operator to perceive using a direction from the vehicle to the obstacle, a separation between the vehicle and the obstacle, and a relative velocity between the vehicle and the obstacle, for allocating commands for prompting the operator to operating the vehicle longitudinally and laterally, and for generating the commands; and

a plurality of actuators, mounted to the vehicle, to prompt the operator in response to the commands to operating the vehicle longitudinally and laterally,

the plurality of actuators including an accelerator reaction modulation actuator capable of modulating reaction characteristic to manual effort applied onto an accelerator of the vehicle by the operator, a brake pedal reaction modulation actuator capable of modulating reaction characteristic to manual effort applied onto a brake of the vehicle by the operator, and a steering reaction modulation actuator capable of modulating reaction characteristic to manual steering effort by the operator.

58. A driving assist system for assisting effort by an operator to operate a vehicle in traveling, the driving assist system comprising:

a data acquisition system, mounted to the vehicle, acquiring data involving information on the presence of obstacles in a field around the vehicle;

a controller, mounted to the vehicle, for receiving the acquired data, for determining a risk which each the obstacles would cause the operator to perceive using a direction from the vehicle to the obstacle, a separation between the vehicle and the obstacle, and a relative velocity between the vehicle and the obstacle, for making an operator response plan in response to the risk, which plan prompts the operator to operating the vehicle longitudinally and laterally, to determine commands, and for generating the commands; and

a plurality of actuators, mounted to the vehicle, to prompt the operator in response to the commands to operating the vehicle longitudinally and laterally,

wherein, in making an operator response plan, the controller divides each the determined risks into a longitudinal, with respect to the vehicle, risk component and a lateral, with respect to the vehicle, risk component, uses the total of the longitudinal risk components to determine the amount of input to one of the plurality of actuators, and uses the total of the lateral risk components to determine the amount of input to another of the plurality of actuators.

59. The driving assist system as claimed in claim 58, wherein the risk which each the obstacles would cause the operator to perceive is a function of a time to contact (TTC) between the vehicle and the obstacle.

60. A driving assist system for assisting effort by an operator

to operate a vehicle in traveling, the driving assist system comprising:

means for acquiring data involving information on the presence of obstacles in a field around the vehicle;

means for determining a risk which each the obstacles would cause the operator to perceive using a direction from the vehicle to the obstacle, a separation between the vehicle and the obstacle, and a relative velocity between the vehicle and the obstacle

means for dividing each the determined risks into a longitudinal, with respect to the vehicle, risk component and a lateral, with respect to the vehicle, risk component;

means for calculating the total of the longitudinal risk components and the total of the lateral risk components;

means for making an operator response plan in response to the calculated totals, which plan prompts the operator to operating the vehicle longitudinally and laterally, to determine commands; and

means for prompting the operator in response to the commands to operating the vehicle longitudinally and laterally.

61. A vehicle operated by an operator in traveling, the vehicle comprising:

a data acquisition system acquiring data including information on vehicle state and information on environment in a field around the vehicle;

a controller for determining future environment in the field using the acquired data, for making an operator response plan in response to the determined future environment, which plan prompts the operator to operating the vehicle in a desired manner for the determined future environment, to determine command, and for generating the command; and

at least one actuator for prompting the operator in

response to the command to operating the vehicle in the desired manner.

62. A vehicle operated by an operator in traveling, the vehicle comprising:

a data acquisition system acquiring data including information on vehicle state and information on environment in a field around the vehicle, the information on environment involving information on the presence of obstacles in the field;

a controller for receiving the acquired data, for determining future environment in the field, the determined future environment involving a risk which each of the obstacles would cause the operator to perceive, for making an operator response plan in response to the determined future environment, which plan prompts the operator to operating the vehicle at least longitudinally to reduce the risks, to determine commands, and for generating the commands; and

a plurality of actuators for prompting the operator in response to the commands to operating the vehicle at least longitudinally, the plurality of actuators includes an accelerator reaction modulation actuator capable of modulating reaction characteristic to manual effort applied onto an accelerator of the vehicle.

63. A vehicle operated by an operator in traveling, the vehicle comprising:

a data acquisition system acquiring data involving information on the presence of an obstacle in a field around the vehicle;

a controller for receiving the acquired data, for determining a risk which the obstacle would cause the operator to perceive, for allocating commands for prompting the operator to operating the vehicle longitudinally and laterally, and for

generating the commands; and

a plurality of actuators, mounted to the vehicle, to prompt the operator in response to the commands to operating the vehicle longitudinally and laterally.

64. A vehicle operated by an operator in traveling, the vehicle comprising:

a data acquisition system acquiring data involving information on the presence of obstacles in a field around the vehicle;

a controller for receiving the acquired data, for determining a risk which each of the obstacles would cause the operator to perceive, for making an operator response plan in response to the risks, which plan prompts the operator to operating the vehicle longitudinally and laterally, to determine commands, and for generating the commands; and

a plurality of actuators to prompt the operator in response to the commands to operating the vehicle longitudinally and laterally.

65. A vehicle operated by an operator in traveling, the vehicle comprising:

a data acquisition system acquiring data involving information on the presence of an obstacle in a field around the vehicle;

a controller for receiving the acquired data, for determining a risk which the obstacle would cause the operator to perceive using a direction from the vehicle to the obstacle, a separation between the vehicle and the obstacle, and a relative velocity between the vehicle and the obstacle, for making an operator response plan in response to the risk, which plan prompts the operator to operating the vehicle longitudinally and laterally, to determine commands, and for generating the

commands; and

a plurality of actuators to prompt the operator in response to the commands to operating the vehicle longitudinally and laterally,

the plurality of actuators including an accelerator reaction modulation actuator capable of modulating reaction characteristic to manual effort applied onto an accelerator of the vehicle by the operator, a brake pedal reaction modulation actuator capable of modulating reaction characteristic to manual effort applied onto a brake of the vehicle by the operator, and a steering reaction modulation actuator capable of modulating reaction characteristic to manual steering effort by the operator.

66. A vehicle operated by an operator in traveling, the vehicle comprising:

a data acquisition system acquiring data involving information on the presence of obstacles in a field around the vehicle;

a controller for receiving the acquired data, for determining a risk which each the obstacles would cause the operator to perceive using a direction from the vehicle to the obstacle, a separation between the vehicle and the obstacle, and a relative velocity between the vehicle and the obstacle, for making an operator response plan in response to the risk, which plan prompts the operator to operating the vehicle longitudinally and laterally, to determine commands, and for generating the commands; and

a plurality of actuators to prompt the operator in response to the commands to operating the vehicle longitudinally and laterally,

wherein, in making an operator response plan, the controller divides each the determined risks into a longitudinal, with respect to the vehicle, risk component and a lateral, with

respect to the vehicle, risk component, uses the total of the longitudinal risk components to determine the amount of input to one of the plurality of actuators, and uses the total of the lateral risk components to determine the amount of input to another of the plurality of actuators.

67. A method for assisting effort by an operator to operate a vehicle in traveling, the method comprising:

acquiring data including information on vehicle state and information on environment in a field around the vehicle;

determining future environment in the field using the acquired data;

making an operator response plan in response to the determined future environment, which plan prompts the operator to operating the vehicle in a desired manner for the determined future environment, to determine command; and

prompting the operator in response to the command to operating the vehicle in the desired manner.

68. A method for assisting effort by an operator to operate a vehicle in traveling, the method comprising:

acquiring data including information on vehicle state and information on environment in a field around the vehicle, the information on environment involving information on the presence of obstacles in the field;

determining future environment in the field based on the acquired data, the determined future environment involving a risk which each of the obstacles would cause the operator to perceive;

making an operator response plan in response to the determined future environment, which plan prompts the operator to operating the vehicle at least longitudinally to reduce the risks, to determine commands; and

prompting the operator in response to the commands to operating the vehicle at least longitudinally, by modulating reaction characteristic to manual effort applied onto an accelerator of the vehicle.

69. A method for assisting effort by an operator to operate a vehicle in traveling, the method comprising:

acquiring data involving information on the presence of a leading vehicle in a field around the vehicle; and

determining, based on the acquired data, a reciprocal of a time to contact (TTC) between the vehicles;

determining, based on the acquired data a reciprocal of a time headway (THW) between the vehicles;

determining future environment in the field based on the determined reciprocals;

making an operator response plan in response to the determined future environment to determine a command; and

modulating reaction characteristic to manual effort applied onto an accelerator of the vehicle in response to the command.

70. A method for assisting effort by an operator to operate a vehicle in traveling, the method comprising:

acquiring data involving information on the presence of a leading vehicle in a field around the vehicle; and

determining, based on the acquired date, an extent to which the vehicles has approached to each other;

determining a period of time as a function of the determined extent;

determining a future quantity of the extent that would occur upon elapse of the period of time from the determined extent to give future environment in the field;

making an operator response plan in response to the

determined future environment to determine a command; and

modulating reaction characteristic to manual effort applied onto an accelerator of the vehicle by the operator in response to the command.

71. A method for assisting effort by an operator to operate a vehicle in traveling, the method comprising:

acquiring data involving information on the presence of an obstacle in a field around the vehicle;

determining, out of the acquired data, a risk which the obstacle would cause the operator to perceive;

allocating commands for prompting the operator to operating the vehicle longitudinally and laterally; and

prompting the operator in response to the commands to operating the vehicle longitudinally and laterally.

72. A method for assisting effort by an operator to operate a vehicle in traveling, the method comprising:

acquiring data involving information on the presence of obstacles in a field around the vehicle;

determining, out of the acquired data, a risk which each of the obstacles would cause the operator to perceive;

making an operator response plan in response to the risks, which plan prompts the operator to operating the vehicle longitudinally and laterally, to determine commands; and

prompting the operator in response to the commands to operating the vehicle longitudinally and laterally.

73. A method for assisting effort by an operator to operate a vehicle in traveling, the method comprising:

acquiring data involving information on the presence of obstacles in a field around the vehicle;

determining, out of the acquired data, a risk which each of

the obstacles would cause the operator to perceive using a direction from the vehicle to the obstacle, a separation between the vehicle and the obstacle, and a relative velocity between the vehicle and the obstacle;

making an operator response plan in response to the risks, which plan prompts the operator to operating the vehicle longitudinally and laterally, to determine commands;

modulating reaction characteristic to manual effort applied onto an accelerator of the vehicle by the operator in response to one of the commands;

modulating reaction characteristic to manual effort applied onto a brake of the vehicle by the operator in response to another of the commands; and

modulating reaction characteristic to manual steering effort by the operator in response to other of the commands.

74. The method as claimed in claim 73, wherein the step of making an operator response plan comprises the sub-steps of:

dividing each the determined risks into a longitudinal, with respect to the vehicle, risk component and a lateral, with respect to the vehicle, risk component; and

calculating the total of the longitudinal risk components and the total of the lateral risk components in determining the commands.

75. A system for assisting effort by an operator to operate a vehicle in traveling, the system comprising:

means for acquiring data including information on vehicle state and information on environment in a field around the vehicle;

means for determining future environment in the field using the acquired data;

means for making an operator response plan in response

to the determined future environment, which plan prompts the operator to operating the vehicle in a desired manner for the determined future environment, to determine command; and

means for prompting the operator in response to the command to operating the vehicle in the desired manner.

76. A vehicle operated by an operator in traveling, the vehicle comprising:

means for acquiring data including information on vehicle state and information on environment in a field around the vehicle;

means for determining future environment in the field using the acquired data;

means for making an operator response plan in response to the determined future environment, which plan prompts the operator to operating the vehicle in a desired manner for the determined future environment, to determine command; and

means for prompting the operator in response to the command to operating the vehicle in the desired manner.